

## REMARKS

Reconsideration is respectfully requested in view of the foregoing amendment and the remarks which follow.

By this amendment applicants have cancelled claims 1-19 and added new claims 20-31. The newly added claims are fully supported in the as-filed specification.

Claims 1-19 stand rejected under §112, second paragraph, for indefiniteness. This rejection is respectfully traversed.

The phrase “group comprising” has been eliminated from the newly added claims. In the new claims the phrase employed is “selected from the group consisting of....”.

In new claim 20, there is only a single “and”.

It is respectfully submitted that the §112, second paragraph rejection has been overcome and accordingly it should be withdrawn.

Claims 1-7 and 8-19 stands rejected under 35 USC 102(b) as anticipated by or, in the alternative, under 35 USC 103(a) as obvious over Ou et al. US 4,655,842. This rejection is respectfully traversed.

The Ou reference discloses the intercalation of native vermiculite by an exchange with an aqueous solution comprising lithium citrate. However, the process disclosed in this reference is directed to the solution of a completely different problem, and leads to a final product which is completely unsuitable with respect to the claimed invention.

As can be seen from the disclosure at column 2, lines 22 to 27 of Ou, it sets out to produce a **stable dispersion** in which the vermiculite platelets do not settle upon standing.

These dispersions are obtained by treating the vermiculite crystals with citrate anion and a cation, which promotes swelling of said crystals in a direction normal to the main cleavage plane of said crystals during immersion in water, subsequent to their treatment. Thereafter, immersing the treated crystals in water, permitting said crystals to swell and then subjecting the resultant swollen crystals while immersed in water to a **shearing force to delaminate the vermiculite crystal and form a suspension of delaminated vermiculite platelets.**

Therefore, the disclosure of Ou sets out to transform the particles of the unexfoliated, i.e. non-delaminated vermiculite ore (cf. column 2, lines 61 to 64) into **exfoliated and delaminated vermiculite particles**. Such delaminated vermiculite

particles, however are no longer intumescent, i.e. they do not expand upon heating, because the layered structure of the delaminated vermiculite has been opened and destroyed to produce independent vermiculite particles. Since only phyllosilicates, having such a layered structure can expand upon heating, the product obtained by the process disclosed in the Ou patent cannot be used as an intumescing, fire-retarding additive in a fire-retarding sealing of holes in walls, floors and/or ceilings of buildings. The expansion of the intumescing, fire-retarding additive is necessary to, in case of a fire, close the through holes, wall bushings or other openings in said walls by increasing the volume of the flame-retarding material by the expansion of the intumescing vermiculite-intercalation compound.

By contrast, in the claimed invention, intumescing phyllosilicate-intercalation compounds are used as an intumescing, fire-retarding additive, which requires that the phyllosilicate-intercalation compound intumesces, i.e. expands by the high temperatures present in case of a fire, and specifically in accordance with the present invention, with an expansion rate and onset-temperature which can be specifically controlled by using the intercalating compounds and their quantities as recited in new independent claim 20.

Accordingly, the claimed invention distinguishes over the disclosure of the Ou reference cited in the Patent Office Action. Thus, the '0102 rejection has been overcome and should be withdrawn.

The subject-matter claimed is also based upon an inventive step because the Ou patent clearly directs the skilled person to manufacture stable aqueous dispersions of vermiculite comprising delaminated vermiculite particles, which are no longer expandable upon heating. Furthermore, there is no teaching or disclosure in Ou that the specific intumescing phyllosilicate-intercalation compounds can be used as an intumescing fire-retarding additive and/or in an expanded form as an additive for producing flame-retarding materials or for preparing high temperature-resistant insulating panels and seals.

Quite apart from the foregoing, one of ordinary skill in the art would not be taught by Ou that by selecting the intercalate compounds to be incorporated into the native vermiculite, as recited in claim 20, it becomes possible to provide phyllosilicate-intercalation compounds, the properties of which with respect to the expansion rate, the onset-temperature and the expansion volume, can be controlled as desired. In this manner, the intumescing fire-retarding additive in its expansion properties can be properly matched

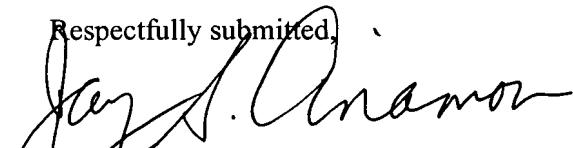
to the melting behaviour of the other components, such as the cables and the wall bushings. In this case it is readily possible to match the start of the expansion of the phyllosilicate-intercalation compounds precisely to the area where it is to be used and in this manner achieve a higher variability of the intumescing materials for passive fire protection. In this respect, it has to be taken into consideration that the phyllosilicate-intercalation compounds according to the claimed invention also expand under load, and therefore are capable of releasing very strong expansion forces, a property which is of importance for their use as an intumescing fire-protection additive.

As can be seen by reference to Example 3 and Comparative Example 4, the expansion properties of the vermiculite-intercalation compound according to the present invention can be modified, and will be independent of the intercalator compound which is incorporated into the native vermiculite.

Since the Ou reference does not teach or disclose these technological requirements, the claimed invention distinguishes thereover and the rejection under §103(a) for obviousness has been overcome. Withdrawal of the rejection is accordingly respectfully solicited.

The issuance of a Notice of Allowance is requested.

Please charge any fees which may be due to our Deposit Account No. 01-0035.

Respectfully submitted,  
  
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